Sartre Events for Proposal

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Exclusive WG

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What & Location

Diffractive VM production in e+Au: $e + \mathrm{Au} \rightarrow e' + \mathrm{Au}' + \rho, \phi, J/\psi$

/eic/data/ullrich/sartre

sartre/generator: event generator program plus runcards

sartre/data: 600M events, 200M for each VM where 100M photo, 100M for $1 < Q^2 < 20$ GeV^2
Root files (10M events each) & corresponding log files (cross-section!) and README file

sartre/reader: Example macro to read

Details

- All events use KMW (Kowalski, Montyka, Watt) IPSat/IPNonSat parameters.
  - most complete set we have
  - new table production likely to not happen this year (very CPU intensive, many tables)
  - not too granular
  - has wiggles in incoherent spectrum - disappear with any realistic t resolution
- Decays only for main channel (decay angles according to HERA measurements)
  - J/psi to e e
  - phi to K K
  - rho to pi pi
- Real part and skewness correction were on if possible. Some datasets could not have them on since they needs ep tables with similar dimensions. Cross-section predictions are only reliable with corrections on (factor ~2)
- Photoproduction is not $Q^2=0$ but approximated by $0.0001 < Q2 < 0.01$ GeV
- Nuclear breakout was not switched on - BeAGLE is more reliable here

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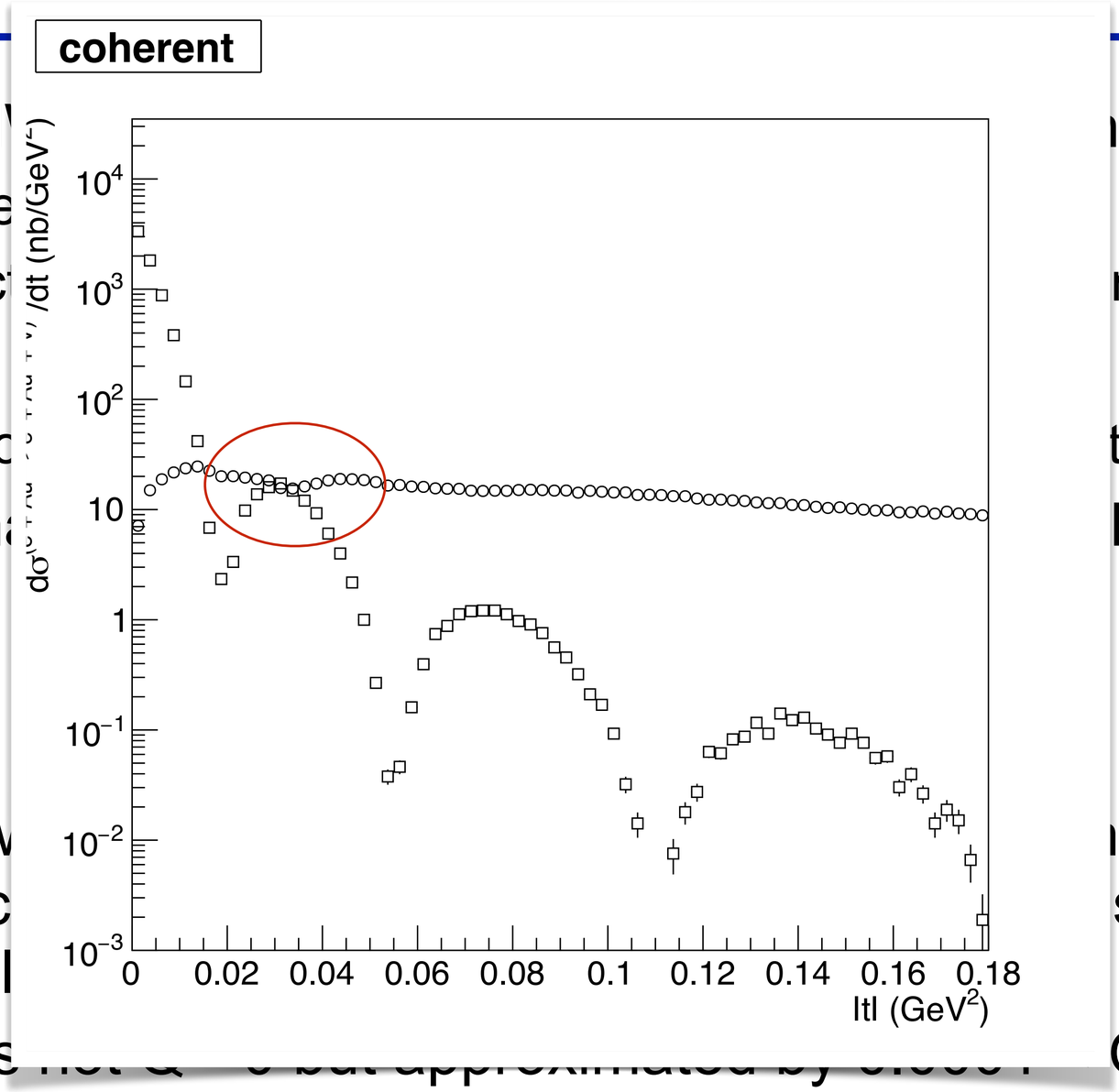

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Output

- ROOT files contain “All” possible info per event
- reader example shows how to load files, chain them and loop over events
- There’s a version by Barak (SBU) that transforms the output to be able to eic-smear-readable. Will make this available as soon as I get it and possible plug that into Sartre as optional output.
- There are new tables for lighter ions created at JLab that need to be vetted by Tobias and implemented

Sartre is the only generator that provides a model (IPSat) implementation for several key measurements of an EIC (WP, NAS, YR) and the only generator that has saturation and non-saturation scenarios implemented.
While cross-section tables are a bit outdated it’s sound to be used for the proposal.